

REMARKS

This amendment is being filed in response to the Office Action having a mailing date of May 11, 2005. Claims 1, 3-5, and 7-14 are amended as shown. In particular, claims 1, 5, and 10-11 are amended to recite certain distinctive subject matter. Claim 6 is canceled herein without prejudice (claim 2 was previously canceled in a Preliminary Amendment filed on July 23, 2004). New claims 15-17 are added. No new matter has been added. With this amendment, claims 1, 3-5, and 7-17 are pending in the application.

I. Claim Objections and 35 U.S.C. § 112, Second Paragraph Rejections

In the Office Action, the Examiner objected to claims 10 and 11 as being “of improper dependent form...” Claims 10 and 11 are amended to independent form and are of proper format. Therefore, it is believed that the objection to these claims has been overcome.

The Examiner objected to claim 8 because of the presence of parenthesis. Claim 8 has been amended to remove the parenthesis, thereby overcoming the Examiner’s objection.

Claims 6 and 14 were rejected under 35 U.S.C. § 112, second paragraph, for being indefinite. In particular, the Examiner identified the terms “in particular” and “for example” that were present in claims 6 and 14, respectively. Claim 6 has been canceled, thereby making this rejection moot. Claim 14 has been amended herein to address and overcome the indefiniteness rejections.

II. Discussion of the Applicant’s Embodiments and the Cited References

In the Office Action, the Examiner rejected claims 1 and 3-14 under 35 U.S.C. § 103(a) as being unpatentable over DE 69220228T in view of Turner (U.S. Patent No. 6,646,845) and Takano (an article entitled “Development of Quick Charging Station for Electrical Vehicle”). For the reasons set forth below, the applicant respectfully disagrees, and requests that the Examiner allow all pending claims.

A disclosed embodiment will now be discussed in comparison to the applied references. Of course, the discussion of the disclosed embodiment, and the discussion of the differences between the disclosed embodiment and subject matter described in the applied

references, do not define the scope or interpretation of any of the claims. Instead, such discussed differences are intended to merely help the Examiner appreciate important claim distinctions discussed thereafter.

One embodiment of the present invention allows a user of a vehicle having an electric motor to synchronize charging of the energy storage device in the vehicle to low electrical consumption periods during a day, and supplying electrical energy back to an electrical supply network during high electrical consumption periods during a day, thereby contributing energy that can be used to meet high consumption demands. A control unit in the vehicle permits flow of current between the energy storage device and the electrical supply network.

In an embodiment, the control unit controls the flow of current back to the electrical supply network in such a way that the flow is interrupted when a predetermined residual charge amount in the energy storage device is reached. Moreover in an embodiment, the control unit is programmable to allow discharging of the energy storage device by a flow of current from the energy storage device to the current source (*e.g.*, the electrical supply network) only during predeterminable time period(s) set by the user. *See, e.g.*, claims 5 and 8 as originally filed and elsewhere in the application.

In some embodiments, the energy discharged from a motor vehicle coupled to the electrical supply network can be used to charge other motor vehicle(s) coupled to the electrical supply network. *See, e.g.*, page 10, lines 3-7 of the applicant's clean Substitute Specification filed on July 23, 2004. Furthermore, the motor vehicle(s) can have a suitable data interface of that the vehicle can communicate, such as by sending and/or receiving, data with the electrical supply network that pertain to charging and discharging. *See, e.g.*, page 10, lines 21-24 of the applicant's clean Substitute Specification filed on July 23, 2004.

The cited references, whether singly or in combination, do not disclose, teach, or suggest these and other features of the applicant's embodiments. For example, DE 69220228T (corresponding to U.S. Patent No. 5,642,270 issued to Green) discloses a motor vehicle with at least one electric motor and an energy storage device for providing drive energy for the electric motor, but is completely silent with regards to a feature of limiting the discharge of the energy storage device back to the current source to a predeterminable period of time that can be defined

by the user. For example, Green describes using only the battery's state of charge to define the parameters associated with extracting charge from the battery. *See, e.g.*, col. 9, lines 45-48 of Green. User specification of a predeterminable period of time to perform the discharge is not mentioned anywhere in Green, since the battery's state of charge is the sole factor used to determine battery discharge in Green.

The Examiner is correct in that Green provides a control means for controlling current flow (*i.e.*, the microcontroller 3 in Figures 11A-11B of Green). However, Green does not provide the combination of a device for detecting the amount of charge in the energy storage device and interruption of the discharge of the energy device if a predetermined threshold value is reached, and allowing the discharge only during period(s) of time specified by a user.

Turner does not cure the deficiencies of Green. Turner simply relates to a motor vehicle with a battery that is used for engine ignition. *See, e.g.*, column 1, lines 14-16 of Turner. There is absolutely nothing in Turner to indicated that Turner relates to a motor vehicle having an electric motor, or more specifically, a motor vehicle having an energy storage device that provides drive energy to the electric motor of the motor vehicle.

Furthermore, Turner does not provide any explicit disclosure and/or hints that his battery can be connected to an external current source or other part of an electrical supply network using a plug connector. Indeed, since Turner relates to conventional non-electrically powered motor vehicles, there is no need for the plug connector and a battery that can be connected to an external supply network in order to charge/discharge the battery through the plug connector. In short, Turner is not relevant art and so a person skilled in the art would not look to Turner to supply the missing teachings of Green.

Takano also does not cure the deficiencies of Green. Takano may disclose a charging connector for connecting an electric vehicle with a charging stand, but a plug connector is not disclosed. Moreover, Takano does not disclose, teach, or suggest any feature pertaining to user specification of a predeterminable period of time to perform the discharge or other features provided by the applicant's embodiments.

III. Discussion of the Applicant's Claims

Accordingly, independent claim 1 has been amended to recite that --the control means is programmable to allow discharge of the energy storage device by the flow of current from the energy storage device to the current source only during a predeterminable time period that is set by a user--. As described above, none of the cited references disclose, teach, or suggest this feature. For example, Green bases its discharge based on the amount of charge that remains in the battery and is completely silent with regards to user-setting of a predeterminable time-period in which to allow discharge.

There are also other features in independent claim 1 that are not found in the references. Such features include the plug connector (not found in Takano), an electric motor that is provided with drive energy from an energy storage device (not found in Turner), just to name two examples. Accordingly, independent claim 1 is allowable.

Independent claim 5 is amended to recite --obtaining user input that programs a discharge of the energy storage device by a flow of current from the energy storage device to the network only during predeterminable periods of time--. Additionally, independent claim 5 is amended to recite permitting flow of current from the energy storage device to the electrical supply network during the second predeterminable periods of time as programmed by the user input. As explained above, there is nothing in the cited references that involves user input that programs discharge of the energy storage device to predeterminable periods of time. Therefore, amended claim 5 is allowable.

Claims 10 and 11 are amended to independent form. Both of these claims are amended to recite, using varying language, the feature of user input that programs discharge by the flow of current from the energy storage devices to the electrical supply network only during the predeterminable periods of time. As explained above, these features are not disclosed, taught, or suggested by any of the cited references.

Independent claim 11 further recites --if required, triggering at least partial discharge of a plurality of energy storage devices, connected to the electrical supply network, of vehicles based at least in part on energy needs of the electrical supply network--. There is

absolutely nothing in the cited references that involve this feature. The network of Green and Takano, for instance, do not “trigger” discharge of the batteries based at least in part on needs of their electrical supply network. New dependent claim 15 recites a similar feature. Independent claims 10-11 and dependent claim 15 are allowable.

Dependent claim 14 recites a connection plug that is usable to communicate data between the motor vehicle and the electrical supply network, including data pertaining to a condition of the energy storage device of the vehicle. Because this feature is not found in any of the cited references, dependent claim 14 is allowable.

New dependent claim 17 recites supplying energy discharged from one vehicle to charge another vehicle (both vehicles having energy storage devices coupled to the electrical supply network). This transferring of energy between vehicles is not disclosed, taught, or suggested by any of the cited references. Accordingly, dependent claim 17 is allowable.

The various independent and dependent claims have also been amended to provide proper antecedent basis and/or to otherwise clarify the recitations contained therein. The appropriate fee for the newly independent claim 10 or independent claim 11 is included with this amendment.

IV. Conclusion

Overall, none of the references singly or in any motivated combination disclose, teach, or suggest what is recited in the independent claims. Thus, given the above amendments and accompanying remarks, the independent claims are now in condition for allowance. The dependent claims that depend directly or indirectly on these independent claims are likewise allowable based on at least the same reasons and based on the recitations contained in each dependent claim.

If the undersigned attorney has overlooked a teaching in any of the cited references that is relevant to the allowability of the claims, the Examiner is requested to specifically point out where such teaching may be found. Further, if there are any informalities or questions that can be addressed via telephone, the Examiner is encouraged to contact the undersigned attorney at (206) 622-4900.

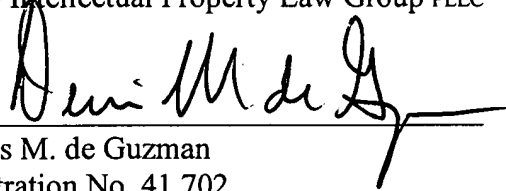
Application No. 10/502,492
Reply to Office Action dated May 11, 2005

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

SEED Intellectual Property Law Group PLLC

A handwritten signature in black ink, appearing to read "Dennis M. de Guzman", is written over a horizontal line. The signature is fluid and cursive.

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